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NORTHERN MIDDLESEX
SERVICE DELIVERY AREA
(Lowell Labor Market Area)

Industry and Occupational Analysis

COMMONWEALTH OF MASSACHUSETTS

Division of Employment Security

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Michael S. Dukakis, Governor
Evelyn F. Murphy, Secretary, Economic Affairs
Kristin S. Demong, Director, DES

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Research and Policy Department
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Northern Middlesex SDA

I. Introduction

The Northern Middlesex Service Delivery Area (SDA) consists of the city of Lowell and the towns of Billerica, Chelmsford, Dracut, Tewksbury, Tyngsborough, and Westford. The SDA is coterminous with the Lowell Labor Market Area (LMA).

In April 1984, the unemployment rate for the SDA fell to 3.9 percent, a significant drop from the 5.5 percent unemployment rate recorded one year ago. The current unemployment picture compares very favorably with other SDA's. Only the affluent Metro South/West SDA posted a lower unemployment rate (3.2 percent). Unemployment rates for the two adjoining SDA's along the New Hampshire border contrast sharply with that of Northern Middlesex. The Lower Merrimac Valley and Northern Worcester SDA's recorded April unemployment rates of 5.6 percent and 5.4 percent respectively. The April unemployment rate in the Northern Middlesex SDA stood over a full percent lower than the seasonally unadjusted statewide rate of 5.0 percent.

The local economy looks even stronger when we consider that Massachusetts recorded the lowest unemployment rate of the ten largest industrial states. The degree of unemployment in the Northern Middlesex SDA contrasts sharply with the national picture where the April unemployment rate of 7.6 percent was nearly double the local rate.

Not only is unemployment low in Northern Middlesex but its relative position has strengthened significantly. Between 1981 and 1983 the annual average unemployment rate dropped from 5.7 percent to 5.5 percent. During this same period, however, the Massachusetts unemployment rate climbed from 6.4 percent to 6.9 percent while the national rate jumped from 7.6 percent to 9.6 percent. While recessionary influences did force the Northern Middlesex unemployment rate up to 7.2 percent for 1982, the rate dropped dramatically during 1983.

We will now focus on some of the reasons why the Northern Middlesex SDA has fared so well and some of the industries and occupations that are most likely to exhibit future growth.

II. Industry Analysis

A detailed analysis of the Northern Middlesex SDA revealed five industries with very favorable prospects for future job opportunities: office and computing machines; electronic components and accessories; eating and drinking places; computer and data processing services and miscellaneous business services.

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All of these industries have demonstrated above average growth rates between the third quarter of 1981 and the third quarter of 1983. This growth occurred despite the fact that the national economy began a prolonged recession in July 1981 that did not officially end until November 1982. Furthermore, all of the industries are projected to show considerable growth at the statewide level between now and 1990.

The Northern Middlesex SDA has a strong manufacturing base. Whereas manufacturing employment represents only 27 percent of private wage and salary employment at the statewide level, it represents nearly half (47 percent) of the 75,000 private sector jobs in Northern Middlesex. Within manufacturing, the durable goods segment accounts for a larger share of employment within Northern Middlesex when compared with the State: 75 percent vs. 70 percent. It is within the respective durable and nondurable goods industries, however, that the different industrial composition can be most easily discerned. In Massachusetts, high technology manufacturing employment represents 39 percent of all manufacturing employment, the highest ratio of all the large industrial states. In Northern Middlesex, a startling two out of every three manufacturing jobs are in high technology industries. In durable goods alone (where over 99 percent of high technology manufacturing is located) 87 percent of the Northern Middlesex jobs are in high technology compared to a still very robust 54 percent figure for the state. The dramatic 13.5 percent job growth in Northern Middlesex between the third quarters of 1981 and 1983, at a time when Massachusetts private sector employment rose by only 3.9 percent, is attributable in large part to growth in the local high technology sector. This growth occurred at a time when the previously booming statewide high technology sector remained relatively flat. The industrial composition of Northern Middlesex left the area very well insulated from the effects of a national recession which adversely impacted such industries as automobiles and steel.

On the down side, the once dominant textile industry continues to see an erosion in employment. Since 1975, the share of textile employment in the area has dropped in half, from 5.5 percent to 2.7 percent.

The Northern Middlesex SDA is dominated by the Office and Computing Machine industry. Establishments in this industry are largely engaged in the manufacturing of electronic computers and peripheral equipment. A large part of industry employment is concentrated within one employer. Employment in the industry has grown by approximately 40 percent over the past two years, triple the growth rate for all private employment, as demand for computers and related equipment has proliferated. The office and computing machine industry should fare very well throughout the 80's. The industry should benefit from the trends toward office automation as well as from the increase in manufacturing of equipment for home use. The industry produces a large share of its products for the growing export market.

While the office and computing machine industry represents a sizeable 2.3 percent of Massachusetts private employment, it accounts for an amazing one out of five jobs in Northern Middlesex. Stated in different terms, Northern Middlesex maintains only 3.2 percent of total Massachusetts employment but over 27 percent of Massachusetts office and computing machine employment.

At the statewide level, office and computing machine employment is projected to grow 35 percent between 1980 and 1990, the majority of which will occur between now and the end of the decade. If this industry in Northern Middlesex parallels the projected State growth rate, employment should swell from its current level of 14,800 to around 20,000.

Office and computing machinery is also an industry that offers very competitive wage rates. Average wages in the industry in Northern Middlesex are nearly 20 percent higher than the average wages for all manufacturing and slightly higher than the statewide average wage for office and computing machinery.

Excluding engineering occupations, there are six different occupations within this industry with statewide growth projections well above average. These occupations in descending order of employment within office and computing machinery include: electronic assembler; electronic technician; secretary; computer programmer; product/material tester; and systems analyst. Since many of these growing occupations are prevalent among more than one of our targetted growth industries, we will save the entire occupational analysis for the last section of this report.

While the employment level of the Electronic Components and Accesssories industry in Northern Middlesex is much smaller than office and computing machinery, it has demonstrated the same 40 percent growth rate during the two-year period under study. This industry is also a major component of the high technology sector. Establishments manufacture semiconductors, cathode ray tubes, and other electronic components vital to the machinery and instruments produced by other high technology companies.

Most of the anticipated 30 percent employment increase in electronic components at the statewide level will occur between now and 1990. With recent advances in Northern Middlesex as an indicator, it is likely that local percentage gains will outpace those of the State. Employment should climb rapidly from its present 3,000 job level. Electronic components should become even more of an integral part of consumer and capital goods, as most types of future machinery will include electronic components.

The electronic components industry plays an important role in the Northern Middlesex economy. Although the area represents only 3.2 percent of Massachusetts employment, its 34 electronic component establishments account for 5.6 percent of statewide employment in this industry.

Wages in electronic components do not compare favorably with those in office and computing machinery,as the electronic components industry maintains a higher concentration of production and maintenance workers and a lower concentration of professional and technical workers. Average wages in electronic components are 17 percent lower than both the Northern Middlesex manufacturing average and the statewide average for this industry. The three largest non-engineering occupations in this industry are electronic assembler, electronic technician and secretary.

Employment in Eating and Drinking Places exhibited strong job growth between third quarter 1981 and third quarter 1983, approximating the total Northern Middlesex employment increase of over 13 percent for this period. This growing sector represents 5.5 percent of all private wage and salary jobs in the Northern Middlesex SDA.

Employment projections for the 1980's show a 17 percent statewide growth rate for this industry. Changing lifestyles, higher incomes, increasing female labor force participation, and more leisure time will all contribute to people dining out more. Employment growth will be most pronounced in fast food restaurants.

The leading occupations within eating and drinking places are on the whole unique to this specific industry. Therefore, the job outlook for such occupations as waiter/waitress, kitchen helper, fast food worker, cook, and bartender are tied into the overall employment prospects for the industry.

The Computer and Data Processing Services industry, although numbering only 700 jobs, has grown 60 percent during the two-year period under study. At the statewide level, computer and data processing services employment is expected to more than double by 1990.

As technology continues to develop at a rapid pace more and more businesses will need outside assistance in obtaining such services as data processing, computer programming, systems design and analysis, and repair and maintenace of computer equipment. The most prevalent jobs in this industry are computer programmer and systems analyst.

Miscellaneous Business Services is another small but growing industry in Northern Middlesex as evidenced by a 70 percent job gain over the 1981 to 1983 period. Employment is now approaching the 1,000 level. As the market place becomes more sophisticated and emphasis is placed on specialization, many establishments will contract with other firms for services that were formally done within their company. Such contract services may include specialized consulting, business management, research and development, and protective services.

III. Occupational Analysis

We have selected twelve non-engineering occupations that should provide good employment opportunities throughout the 80's. Each of these occupations at the Statewide level is projected to grow at least 50 percent faster than the 12 percent growth rate for all occupations. In addition, each selected occupation maintains at least a two percent share of employment in one of the five targetted Northern Middlesex SDA industries.

Systems Analysts plan efficient methods for processing data to solve complex problems. They usually specialize in either business or scientific and engineering applications. Employment in Massachusetts is projected to grow nearly 75 percent as computer capabilities are increased and computers are used to solve a wide variety of problems. The best prospects will exist for college graduates of computer science or related curricula. Opportunities will also be very good for those graduates with courses in programming and systems analysis and training and experience in applied fields. Nearly 20 percent of systems analysts jobs are located in computer and data processing services while an equal number exist within two manufacturing industries: office computing machinery and electronic components.

Computer Programmers write detailed instructions that list in a logical order the steps that a computer must follow to organize data, solve a problem, or do some other task. Employment is expected to grow by nearly 50 percent throughout the decade as computer usage expands. Prospects will be best for college graduates in computer science and related fields but opportunities should also be good, primarily in business settings, for those with less formal education. Beginners may experience some difficulty landing a first job, particularly during a slow economy. Forty percent of computer programmers are employed in either the computer and data processing services or office computing machinery industries.

Electronic Technicians develop, manufacture and service electronic equipment systems. Employment is expected to increase much faster than average, especially in the fields of computer and communication equipment. Opportunities will be best for graduates of post secondary training programs. During times of economic declines, however, inexperienced technicians may find it difficult obtaining jobs. Approximately one-third of employment is concentrated in the office computing machine and electronic component sectors.

Electronic Assemblers put together electrical and electronic equipment such as computers, calculators, missile control systems, and machine tool numerical controls. While not projected to grow as fast as many other occupations in the high technology sector, the growth rate for electronic assemblers should still double the statewide average. Over half of electronic assembly jobs are located in either the office computing machine or electronic component industries. Between 10 and 15 percent of jobs in these two industries are distributed among the various types of electrical, electronic, and electro-mechanical equipment assemblers. Employment prospects within these occupations will be affected by defense spending and changes in economic conditions.

Product/Material Testers examine and evaluate parts, products, or other manfactured materials to determine whether the item in question meets quality and performance standards. Although formal post secondary training is not usually required, employers often look for high school graduates who have some technical skills and experience with technical products. Approximately 50 percent of employment is concentrated amongst three industries: office computing machinery, electronic components, and communications equipment. As these industries prosper, the outlook for the occupation should remain favorable.

Computer Service Technicians are responsible for keeping computer equipment in good working order. Employers usually require that applicants for technician trainee jobs have one or two years training in basic electronics or electrical engineering. The occupation is expected to generate an 80 percent growth rate, second fastest in the State. With the anticipated growth in the computer industry and more widespread use of automated data processing equipment, the need to maintain and repair new equipment will intensify.

Computer and Peripheral Equipment Operators control and tend computers used to process data and run the machines used along with computers. Demand should be quite high for these occupations, however, employment of data entry operators should decline as more efficient direct entry techniques are adopted. Computer equipment operators are employed in a wide variety of industries. Persons with formal computer training and experience will have an advantage.

Secretaries perform a variety of administrative and clerical duties and are found in virtually all business and industrial settings. Some secretaries such as legal and medical secretaries perform highly specialized work. The occupation is expected to generate 20,000 new jobs during the 1980's, 5,000 more than the next highest occupation. While the projected growth rate in Massachusetts is high, the size of the occupation alone should generate many more job opportunities. Technological improvements in office equipment will continue to change the work environment but will not reduce the demand for skilled personnel. Job prospects are excellent for those with typing experience, word processing skills and organizational abilities.

Security Guards protect property at commercial, industrial, and government centers, as well as public buildings such as banks, art galleries, and museums. Employment will grow rapidly through the 80's as concern increases over crime and vandalism. Over half of employment is concentrated within miscellaneous business services, namely protective security agencies. Opportunities will be best for those seeking work on night shifts.

Waiters and Waitresses take customer orders, serve food and beverages, make out checks and take payments. The occupation will generate 11,000 new jobs in Massachusetts during the 80's, the third highest. People dining out more and opportunities for part-time work should contribute to rising employment levels. Many more positions will become available because of the high turnover nature of the position.

Fast Food Preparation Workers are employed in restaurants where menus are generally limited to a few primary items. Employment in this occupation will grow at a nearly 50 percent rate between 1980 and 1990. These occupations have very high turnover rates and offer many part-time openings. With changing demographics leading to a sharp drop in the number of teenaged youth,job openings could be quite high.

Cooks are in charge of food preparation, though their specific duties vary depending upon the size of the establishment. The demand for cooks and chefs will rise as people dine out more often. Areas exhibiting growing population will likewise generate increased opportunities. Persons who have had courses in food preparation will have an advantage in competing for the more lucrative jobs in large restaurants.

Northern Middlesex SDA

Growth Industries

Office and Computing Machines
Electronic Components and Accessories
Eating and Drinking Places
Computer Data Processing Services
Miscellaneous Business Services

Growth Occupations

Systems Analysts
Computer Progammers
Electronic Technicians
Electronic Assemblers
Product/Material Testers
Computer Service Technicians
Computer and Peripheral Equipment Operators
Secretaries
Security Guards
Waiters and Waitresses
Fast Food Preparation Workers
Cooks

TABLE #

UNEMPLOYMENT RATES FOR THE
NORTHERN MIDDLESEX
SERVICE DELIVERY AREA,
MASSACHUSETTS, and UNITED STATES

PERIOD	SDA	MASSACHUSETTS	UNITED STATES
1981 Annual Average	5.7	6.4	7.6
1982 Annual Average	7.2	7.9	9.7
1983 Annual Average	5.5	6.9	9.6
1982			
JANUARY	6.5	8.0	9.4
FEBRUARY	7.4	8.3	9.6
MARCH	6.8	7.6	9.5
APRIL	7.5	8.0	9.2
MAY	8.3	8.6	9.1
JUNE	8.6	9.0	9.8
JULY	9.0	9.6	9.8
AUGUST	7.1	7.6	9.6
SEPTEMBER	6.8	7.4	9.7
OCTOBER	6.6	7.2	9.9
NOVEMBER	5.6	6.5	10.4
DECEMBER	5.8	7.1	10.5
1983			
JANUARY	6.8	8.7	11.4
FEBRUARY	6.4	8.2	11.3
MARCH	6.2	8.0	10.8
APRIL	5.5	6.7	10.0
MAY	5.2	6.5	9.8
JUNE	6.0	7.5	10.2
JULY	5.1	6.2	9.4
AUGUST	5.0	6.0	9.2
SEPTEMBER	6.0	7.0	8.8
OCTOBER	5.4	6.4	8.4
NOVEMBER	4.4	5.6	8.1
DECEMBER	4.5	5.8	8.0
1984			
JANUARY	5.5	7.3	8.8
FEBRUARY	4.6	6.3	8.4
MARCH	4.3	5.8	8.1
APRIL	3.9	5.0	7.6

SOURCE: Local Area Unemployment Statistics Program
Figures not adjusted for seasonality.